

CBRNE
CHEMICAL · BIOLOGICAL · RADIOLOGICAL · NUCLEAR · EXPLOSIVES
Emergency Preparedness for Medical Care Providers

Healthcare providers have been categorized into four learning levels by the Hospital Bioterrorism Preparedness Program for purposes of CBRNE training. In order for the CD to be an effective educational tool, all learners should be assigned a **learner level** of 1, 2, 3 or 4 by the healthcare facility, organization or service prior to the use of the CD however, independent learners can also utilize the program without assignment from their employing organization.

Each level has specific educational goals as well as a corresponding written examination to assess competency and learning. Learners should be held responsible only for the material associated with their assigned level.

LEVEL 1 COMPETENCY ASSESSMENT EXAMINATION

Answer True or False

1. Some of the chemicals that could be used in a weapon can stay on victims' skin or clothing for many hours, and touching them without proper protective equipment can make you ill.

True False

2. Chemicals that could be used in a weapon all smell bad, so you will be able to tell if they are present and you are being exposed.

True False

3. People exposed to certain biological agents may not become ill until many days later.

True False

4. Persons contaminated with radioactive particles usually feel a burning sensation on their skin.

True False

5. Victims contaminated in a chemical or biological attack should be brought into patient care areas at once for treatment.

True False

6. Waste water used in decontaminating patients is contaminated, and might make you sick if it gets on your skin or clothing.

True False

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7. Following any chemical, biological, or radiation attack, all victims will be decontaminated before arriving at medical care facilities.

True False

8. Standard latex medical gloves provide adequate protection for disposing of waste contaminated by a chemical weapon agent.

True False

9. Chemical, biological, and radiation attacks are crimes, and victims' clothing should be saved because it may be used as evidence.

True False

10. Each medical care facility has a plan in place so that employees can work together effectively if there is a natural or man-made disaster.

True False

Key: 1) True 2) False 3) True 4) False 5) False 6) True 7) False 8) False 9) True 10) True

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LEVEL 2 COMPETENCY ASSESSMENT EXAMINATION

Multiple Choice Questions. Pick the single best answer.

1. Chemical weapon agents are classified by their clinical effects. Each of the following is an important class of chemical agents except one:

- A. Choking agents
- B. Blood agents
- C. Liver agents
- D. Nerve agents
- E. Blister agents

2. An outbreak of botulism is occurring in a nearby community. The hospital in that community is unable to care for all the patients from the outbreak, and patients are to be transferred to your facility. Which of the following actions should your facility take?

- A. Prepare an area where the botulism patients can be isolated so that they do not spread the disease to others.
- B. Ensure that your facility has an adequate stock of appropriate antibiotics to treat the botulism patients.
- C. Ensure that staffing is adequate to care for the expected number of patients.
- D. A and C
- E. All of the above.

3. The 1995 Tokyo subway sarin attack taught us which of the following lessons about emergency response to CBRNE events:

- A. Interagency coordination is crucial for an effective response to CBRNE events.
- B. Immediate decontamination is a priority for protecting victims' health and for preventing secondary contamination.
- C. Appropriate personal protective equipment (PPE) must be worn by all personnel who may be exposed to contaminated patients.
- D. Medical personnel must have access to management guidelines for common hazardous agents.
- E. All of the above.

4. You are treating multiple victims of an explosion. A 23 year old male is experiencing chest pain and shortness of breath. He should have the following evaluation and treatment:

- A. Administer high flow oxygen.
- B. Intubation and mechanical ventilation to prevent hypoxia and to reduce the work of breathing.
- C. Chest radiograph (chest x-ray) should be taken as soon as possible to rule out a pneumothorax.
- D. A and C.
- E. All of the above

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LEVEL 2 COMPETENCY ASSESSMENT EXAMINATION

5. Vaccines are currently stockpiled in the United States to prevent which of the following CDC Category A Bioterrorism Agents of Concern:

- A. Smallpox
- B. Plague
- C. Botulism
- D. A and C
- E. B and C

6. All of the following should raise the suspicion of a chemical or biological weapon attack except one:

- A. Spraying activity in an inappropriate area.
- B. Smoke or detectable material in the air.
- C. Animals in the region are ill or dead, but humans are unaffected.
- D. An unexplained odor inappropriate for the context of its surroundings.
- E. An unexplained deposit of material in an area where casualties occurred (e.g. liquid droplets in absence of watering or rain).

7. An outbreak of smallpox has been reported in your county. Appropriate containment measures include:

- A. Suspected and confirmed cases should be isolated.
- B. Everyone that may have had contact with a person ill with smallpox should be vaccinated at once.
- C. Healthcare and law enforcement personnel, and all others involved in containing the outbreak should be vaccinated at once.
- D. Transfer of smallpox patients to designated facilities equipped for their care.
- E. All of the above

8. If a medical care provider who does not have personal protective equipment (PPE) is directly exposed to a high-level chemical or biological agent release all of the following actions are appropriate except one:

- A. Immediately leave the area of the exposure.
- B. Go to the specified decontamination area at once if it is nearby and is ready to receive casualties.
- C. If there is no available decontamination facility, remove all clothing and thoroughly wash yourself with mild soap and water.
- D. Scrub hard to remove all contamination.
- E. Do not touch or put back on contaminated clothing.

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LEVEL 2 COMPETENCY ASSESSMENT EXAMINATION

9. The victim of a chemical attack is noted to have very small pupils. Which class of chemical agents should be suspected?
- A. Blister agents
 - B. Blood agents
 - C. Tearing agents
 - D. Nerve agents
 - E. Choking agents
10. Each of the following statements is true regarding identifying and reporting CBRNE events except one:
- A. Medical facilities play a key role in identifying threats to public health.
 - B. Biological agents may be used covertly so that medical facility personnel may be the first to recognize an event has occurred.
 - C. Law enforcement agencies should not be notified until a suspected chemical or biological attack is definitively confirmed.
 - D. The state of California requires that any occurrence that threatens the welfare, safety, or health of patients, visitors, or personnel must be reported to the local health officer and to the appropriate state or federal agencies.
 - E. When a CBRNE event is suspected by medical facility staff, immediate internal and external notification is required.

Answer True or False

11. Some of the chemicals that could be used in a weapon can stay on victims' skin or clothing for many hours, and touching them without proper protective equipment can make you ill.

True False

12. Chemicals that could be used in a weapon all smell bad, so you will be able to tell if they are present and you are being exposed.

True False

13. Persons contaminated with radioactive particles usually feel a burning sensation on their skin.

True False

14. Waste water used in decontaminating patients is contaminated, and might make you sick if it gets on your skin or clothing.

True False

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LEVEL 2 COMPETENCY ASSESSMENT EXAMINATION

15. Following any chemical, biological, or radiation attack, all victims will be decontaminated before arriving at medical care facilities.
- True False
16. Standard latex medical gloves provide adequate protection for disposing of waste contaminated by a chemical weapon agent.
- True False
17. Chemical, biological, and radiation attacks are crimes, and victims' clothing should be saved because it may be used as evidence.
- True False
18. Level D personal protective equipment (PPE) provides the highest level of protection and is appropriate for highly dangerous chemical agents.
- True False
19. The Hospital Emergency Incident Command System [HEICS] employs a logical management structure to assist medical facilities in staying operational during a disaster.
- True False
20. Following a CBRNE event, patients and their families will experience psychological effects, but medical care facility personnel are not at risk for these problems.
- True False

Key:

- | | |
|-------|-----------|
| 1) C | 11) True |
| 2) C | 12) False |
| 3) E | 13) False |
| 4) D | 14) True |
| 5) A | 15) False |
| 6) C | 16) False |
| 7) E | 17) True |
| 8) D | 18) False |
| 9) D | 19) True |
| 10) C | 20) False |

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LEVEL 3 COMPETENCY ASSESSMENT EXAMINATION

Multiple Choice Questions. Pick the single best answer.

1. Chemical weapon agents are classified by their clinical effects. Each of the following is an important class of chemical agents except one:

- A. Choking agents
- B. Blood agents
- C. Liver agents
- D. Nerve agents
- E. Blister agents

2. An outbreak of botulism is occurring in a nearby community. The hospital in that community is unable to care for all the patients from the outbreak, and patients are to be transferred to your facility. Which of the following actions should your facility take?

- A. Prepare an area where the botulism patients can be isolated so that they do not spread the disease to others.
- B. Ensure that your facility has an adequate stock of appropriate antibiotics to treat the botulism patients.
- C. Ensure that staffing is adequate to care for the expected number of patients.
- D. A and C
- E. All of the above.

3. Administration of radioactive iodine is appropriate therapy following which radiation exposure events?

- A. Exposure to radioactive fallout following a thermonuclear explosion.
- B. Exposure to high levels of gamma radiation.
- C. Exposure to a radioactive cesium release from a medical facility.
- D. Exposure to radioactive fallout from a nuclear power plant accident.
- E. All of the above.

4. The 1995 Tokyo subway sarin attack taught us which of the following lessons about emergency response to CBRNE events:

- A. Interagency coordination is crucial for an effective response to CBRNE events.
- B. Immediate decontamination is a priority for protecting victims' health and for preventing secondary contamination.
- C. Appropriate personal protective equipment (PPE) must be worn by all personnel who may be exposed to contaminated patients.
- D. Medical personnel must have access to management guidelines for common hazardous agents.
- E. All of the above.

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LEVEL 3 COMPETENCY ASSESSMENT EXAMINATION

5. You are treating multiple victims of an explosion. A 23 year old male is experiencing chest pain and shortness of breath. He should have the following evaluation and treatment:
- A. High flow oxygen should be administered.
 - B. He should be intubated and mechanically ventilated to prevent hypoxia and to reduce the work of breathing.
 - C. A chest radiograph should be taken as soon as possible to rule out a pneumothorax.
 - D. A and C.
 - E. All of the above
6. Another victim of the explosion has abdominal tenderness, but lacks visible signs of injury. An abdominal CT scan has been ordered. How should he be managed?
- A. The CT scan should be performed. If it is negative the patient can be discharged.
 - B. The CT scan should be cancelled and exploratory surgery performed at once.
 - C. The patient should be closely inspected for abdominal puncture wounds from flying debris. If no puncture wounds are found, the abdominal CT scan should be cancelled, and the patient can be discharged.
 - D. The CT scan should be performed. If it is negative the patient should be admitted for observation.
7. The main effects of all of the following chemical agents occur within seconds to a few minutes except one:
- A. Sarin (a nerve agent)
 - B. Cyanide (a blood agent)
 - C. Chlorine (a choking agent)
 - D. Sulfur mustard (a blister agent)
 - E. Mace (a tearing agent)
8. You are notified that a patient that you cared for yesterday has now been diagnosed as having pneumonic plague. The patient had a fever and a cough when you cared for her. What actions should you take?
- A. No action is necessary since pneumonic plague can not be spread person-to-person.
 - B. Ensure that you get vaccinated with the plague vaccine at once so that you do not become ill.
 - C. Begin a course of antibiotics at once so that you do not become ill.
 - D. Notify your family that you must be quarantined until it becomes known if you will develop plague.
 - E. None of the above.

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12. An outbreak of smallpox has been reported in your county. Appropriate containment measures include:

- A. Suspected and confirmed cases should be isolated.
- B. Everyone that may have had contact with a person ill with smallpox should be vaccinated at once.
- C. Healthcare and law enforcement personnel, and all others involved in containing the outbreak should be vaccinated at once.
- D. Transfer of smallpox patients to designated facilities equipped for their care.
- E. All of the above

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LEVEL 3 COMPETENCY ASSESSMENT EXAMINATION

13. Atropine should be administered as soon as possible to victims suffering from which class of chemical agents:

- A. Vomiting agents
- B. Nerve agents
- C. Blood agents
- D. Blister agents
- E. Choking agents

14. If a medical care provider who does not have personal protective equipment is directly exposed to a high-level chemical or biological agent release all of the following actions are appropriate except one:

- A. Immediately leave the area of the exposure.
- B. Go to the specified decontamination area at once if it is nearby and is ready to receive casualties.
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Answer True or False

16. Victims contaminated in a chemical or biological attack should be brought into patient care areas at once for treatment.

True False

17. Waste water used in decontaminating patients is contaminated, and might make you sick if it gets on your skin or clothing.

True False

18. Following any chemical, biological, or radiation attack, all victims will be decontaminated before arriving at medical care facilities.

True False

19. Standard latex medical gloves provide adequate protection for disposing of waste contaminated by a chemical weapon agent.

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True False

21. Each medical care facility has a plan in place so that employees can work together effectively if there is a natural or man-made disaster.

True False

22. Level D personal protective equipment (PPE) provides the highest level of protection and is appropriate for highly dangerous chemical agents.

True False

23. The Hospital Emergency Incident Command System [HEICS] employs a logical management structure to assist medical facilities in staying operational during a disaster.

True False

24. Following a CBRNE event, patients and their families will experience psychological effects, but medical care facility personnel are not at risk for these problems.

True False

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25. The doctor responsible for caring for the victims of a CBRNE event should be the one to communicate with the representatives of the news media.

True

False

Key:

- 1) C
- 2) C
- 3) D
- 4) E
- 5) D
- 6) D
- 7) D
- 8) C
- 9) A
- 10) C
- 11) D
- 12) E
- 13) B

- 14) D
- 15) C
- 16) False
- 17) True
- 18) False
- 19) False
- 20) True
- 21) True
- 22) False
- 23) True
- 24) False
- 25) False